Integrating Parts Management into Systems Engineering

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Findings

"Acquisition environment lacks adequate emphasis on parts management/standardization at the DoD level"

"Systems Engineering discipline currently lacks parts management/standardization focus"

"Most DoD programs do not address DoD level parts management/standardization"

Donna McMurray, DSPO
"DoD Parts Management Reengineering" status briefing
presented at Defense Standardization Conference
25 May 2006

Views on Parts Management

- Should be a design consideration as part of the SE process
  - Establish metrics (e.g., minimize # of unique parts) to encourage use of standard parts, when warranted
  - Use SE trade studies to balance with cost, availability, reliability and other design considerations

- Provide incentive to primes and lower tiers through the contract to use parts already in DoD system that meet requirements (i.e. reliability, affordability)
  - It costs $$ over the life of the program just to maintain a part in the system

- Design systems using industry standard parts or commercial-off-the-shelf (COTS) parts when it makes sense
  - Use existing/preferred parts lists to eliminate need to develop detailed drawing package.

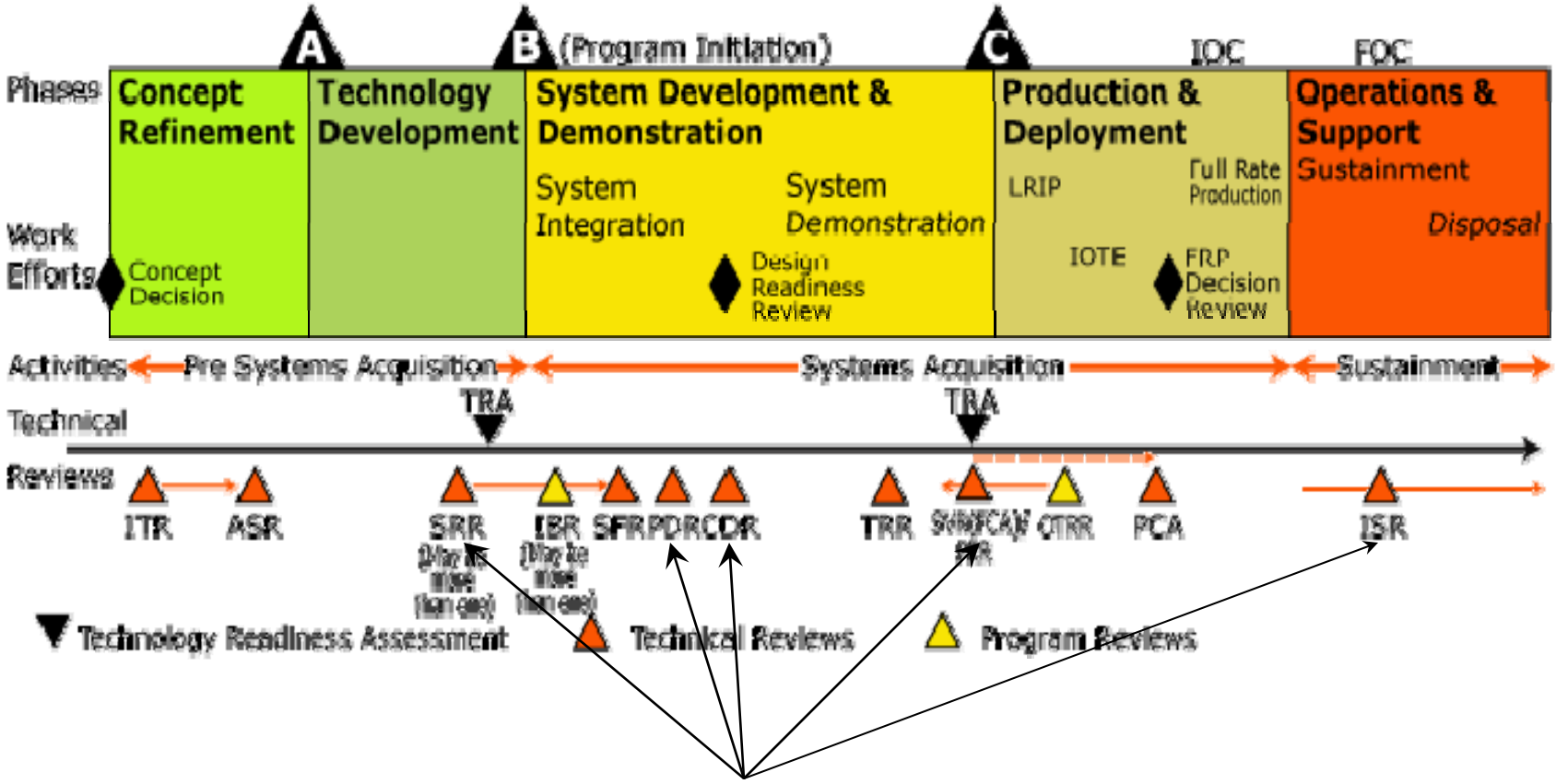
Views on Parts Management

- Use existing parts to eliminate need for new production tooling, or design parts that can be produced easily and contain fewer parts (i.e. moldings/castings)
  - Simplifies oft-overlooked things like set-up time and shop parts control
  - Key point is to include production engineers up front

- Anticipate Diminishing Manufacturing Sources and Material Shortages
  - Avoid manufacturers that could possibly go out of business
  - Avoid material that could wind up to be in short supply (certain raw materials, metals, or end items that will be replaced in the future by emerging technologies).
  - Use trusted sources to build parts as much as possible

- Adapt to common support equipment rather than build a new unique item of support equipment (cuts logistics footprint)
  - Key point is to include logistics considerations up front

Parts Management



Part Management is an important design consideration

Related SSE Initiatives and Contributions

- **Defense Acquisition Guidebook, Ch 4 (Systems Engineering) (*http:www.acq.osd.mil/se/publications.htm*)**
  - Update to include Parts Management as a Design Consideration
  - Draft of proposed changes being coordinated through PMRIPT SE working group
- **Risk Assessment Checklists (refer to Technical Review CLE003 at (https://learn.dau.mil/html/clc/Clc.jsp)**
  - Update to include Parts Management considerations
  - Will be coordinated with PMRIPT SE when available
- **Defense Acquisition Program Support (DAPS) Systems Engineering Assessment Methodology**
  - Evaluating current set of questions and criteria to ensure that Parts Management is adequately considered
- **Consideration in Technical Planning (SEP)**
- **Parts Management CLM**
  - Review and comment to ensure integration with Systems Engineering
- **Life Cycle Cost Savings Through Parts Management, SD-19 Update**
  - Review and comment to ensure integration with Systems Engineering

Summary of Proposed Ch 4 Changes to Address Parts Management

- An overview of the goals of Part Management
  - Reduce logistics footprint and total life cycle costs
- What a part is and its relationship to other system elements and configuration items
- Brief discussion of fundamental SE processes that support Parts Management
  - Configuration management, technical assessment, decision analysis, design solution, implementation, verification and technical reviews
- Suggested elements for creating a part management program that
  - Leverages fundamental SE processes
  - Documented in Systems Engineering Plan
- Includes references to MIL-HDBK-512A, SD-19, and industry guides for additional implementation details

Summary

- ODUSD (A&T)/SSE actions to ensure Parts Management becomes more integrated with systems engineering and acquisition program oversight
  - Incorporation into Systems Engineering portion of Defense Acquisition Guide
  - Inclusion in Risk Checklists for consideration at Technical Reviews
  - Inclusion as consideration in Technical Planning
  - Inclusion in DAPS methodology for Program Support Reviews